

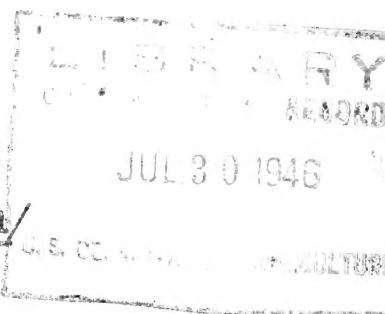
Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

9
83EX
July 1946

ET-230

United States Department of Agriculture
Agricultural Research Administration
Bureau of Entomology and Plant Quarantine



A SIMPLE CAGE FOR TESTING DDT RESIDUAL TREATMENTS 1/

By A. H. Madden and Arthur W. Lindquist
Division of Insects Affecting Man and Animals

It frequently becomes necessary to determine whether surfaces that have been treated with DDT retain a deposit of this insecticide, and the approximate toxicity of the deposit. Since it is not possible to make chemical analyses of such deposits, a biological assay method can be utilized. The following method was developed in 1943 at the Orlando, Fla., laboratory of this Bureau during the course of studies on DDT residues on the interior surfaces of treated airplanes.

A shallow cage (fig. 1) suitable for exposing houseflies or mosquitoes to surfaces treated with DDT may be constructed easily from the cover of a wide-mouth Mason jar. The metal center of the cover is replaced by a disk of 16-mesh screen wire (a finer mesh may be needed for certain species of mosquitoes), which is soldered in place. A thin block of wood is fastened across the outer side to serve as a handle and support. A metal disk, with a narrow strip of metal soldered around a small section of the edge, serves as a cover for the open side of the cage.

When houseflies (*Musca domestica* L.) are to be used as the test insects, the cage is filled by placing it over an opening in the top of a large cage of houseflies. When the desired number have entered, the metal disk is slid into place (fig. 2). To load with mosquitoes the cage is introduced into a large cage containing hundreds of these insects and clapped against a surface on which they are congregated. The metal disk is then slid into place. With the metal disk held firmly by rubber bands, the cages may be transported or stored for 24-hour mortality counts.

To conduct a test, the cage filled with insects is placed against a treated surface, the metal disk removed, and the cage secured by stretching a rubber band between two small nails (fig. 3) or other supports. For use in an airplane the rubber band is stretched between battery clamps clipped to the ribs. At the end of the exposure period,

1/ This work was conducted under a transfer of funds, recommended by the Committee on Medical Research, from the Office of Scientific Research and Development to the Bureau of Entomology and Plant Quarantine.

the metal disk is slid into place and the cage removed. If the insects are to be held for 24 hours, a drop of honey and a bit of water-soaked cotton placed on the outside of the screen wire will provide them with food and water.

Knock-down or mortality counts may be taken readily through the screen. When all records are completed, the remaining live insects may be killed by placing the cages in an electric oven for a few minutes. This makes it possible to determine the total number of insects per cage. Unexposed check insects will remain alive in this type of cage for 24 hours or more when fed and watered and held at a temperature of 78°-82° F.



Figure 1.--Exposure Cage Showing Slide.



Figure 2.--Loading exposure cage with houseflies.

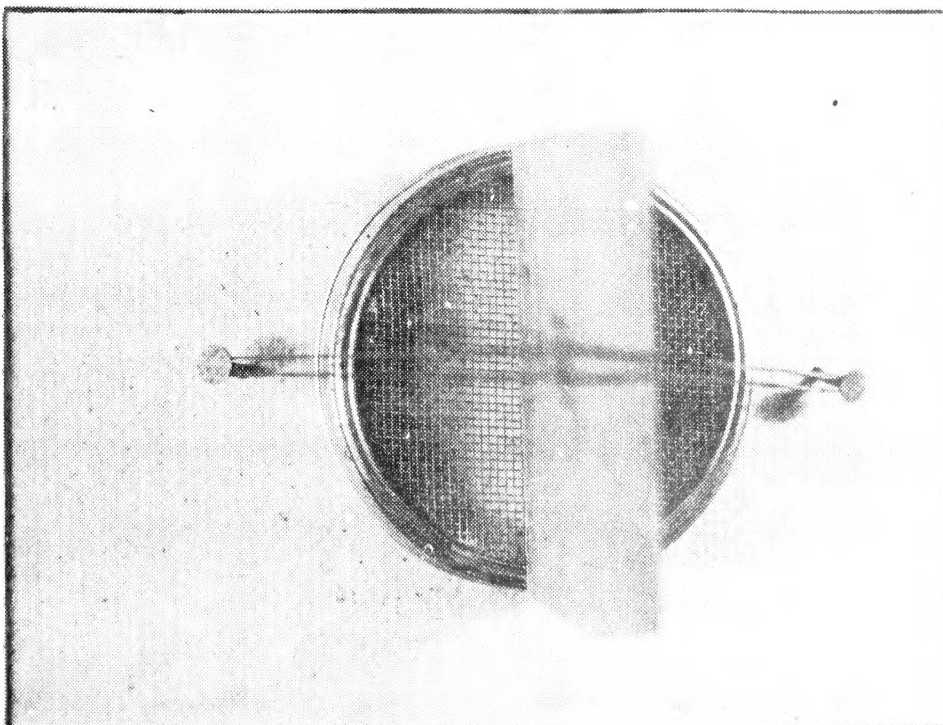


Figure 3.--Exposure cage in place.

